

CLAIMS:

1-21. (cancelled)

22. (previously presented) A location management apparatus functionally located in a mobile communication network, the location management apparatus maintaining a location of a mobile station wirelessly communicating with the mobile communication network, comprising:

a communication control configured to communicate with the mobile station, using the mobile communication network, and receive from the mobile station an identification of a transportation on which the mobile station is carried;

a location information storage in which the location of the mobile station is identifiable with reference to the identification of the transportation;

a transportation location finder configured to identify a communication area where the transportation is situated, based on movement information obtained from a traffic control that manages an operation of a transportation system including the transportation on which the mobile station is carried; and

a paging control configured to, when a call for the mobile station comes, access the location information storage so as to find the communication area, where the transportation is situated, determined by the transportation location finder and cause a paging signal transmitted within the communication area.

23. (previously presented) A location management apparatus according to claim 22, wherein the communication area is a paging area.

24. (previously presented) A location management apparatus according to claim 22, wherein the location information storage is updated by a registration request from the mobile station which identifies either a communication area which the mobile station enters or a transportation on which the mobile station is carried.

25. (previously presented) A location management apparatus according to claim 22, wherein the transportation location finder determines the communication area where

the transportation is situated, using a geographical location of the transportation contained in the movement information.

26. (previously presented) A location management apparatus according to claim 22, the transportation location finder is activated to find the communication area where the transportation is situated when a call is received for the mobile station being carried on the transportation.

27. (previously presented) A location management apparatus according to claim 22, wherein the location information storage and the transportation location finder are located on different servers functionally connected to each other.

28. (previously presented) A location management apparatus according to claim 22, wherein the location information storage comprises:

a first table in which locations of mobile stations are identified with reference to the transportations on which some of the mobile stations are being carried and communication areas where the other of the mobile stations are situated; and

a second table in which locations of the transportations are identified with reference to communication areas where the transportations are situated.

29. (previously presented) A location management apparatus according to claim 28, wherein the second table is updated by an update request from the transportation location finder receiving the movement information of the transportation.

30. (previously presented) A location management apparatus according to claim 22, further comprising a receiver that receives travel information from the mobile station which transmits the travel information in response to the paging signal initiated by the location management apparatus.

31. (previously presented) A location management apparatus according to claim 30, wherein the travel information comprises a geographical location of the mobile station, a traveling direction thereof and a traveling speed thereof.

32. (previously presented) A location management apparatus according to claim 25, further comprising a transportation travel information storage accessible by the transportation location finder which maintains geographical locations of the transportations.

33. (previously presented) A location management apparatus according to claim 32, wherein the transportation travel information storage stores travel statuses of the transportations, wherein the travel status comprises a delay in schedule.

34. (previously presented) A location management apparatus according to claim 33, wherein the travel statuses of the transportations are receivable by the location management apparatus.

35. (previously presented) A location management apparatus according to claim 32, further comprising a schedule information storage that stores travel schedules of the transportations, wherein based on information stored in the transportation travel information storage and the schedule information storage, the location management apparatus determines a future location of a transportation.

36. (previously presented) A location management apparatus according to claim 35, wherein the travel schedules of the transportations are receivable by the location management apparatus.

37. (previously presented) A location management apparatus according to claim 22, wherein a location of a mobile station stored in the location information storage is updated by a registration request from a transportation which identifies the transportation and the mobile station.

38-42. (cancelled)

43. (withdrawn) A location information provider comprising:

a query receiver configured to receive an inquiry from a user asking a location of a mobile station;

a paging control responsive to the inquiry to cause the mobile station to be paged and receive location information of the mobile station from the mobile station;
and

a transmitter configured to transmit to the user a response which comprises at least a part of the location information.

44. (withdrawn) A location information provider according to claim 43, wherein the location information comprises a geographical location of the mobile station.

45. (withdrawn) A location information provider according to claim 43, wherein the location information comprises a direction in which the mobile station is moving and a speed at which the mobile station is moving.

46. (withdrawn) A location information provider according to claim 43, wherein the response comprises an indication as to whether or not the mobile station is situated on a transportation

47. (previously presented) A location information provider comprising:

a query receiver configured to receive an inquiry from a user asking a location of a mobile station;

a memory that stores time schedules of transportations;

a location queryer responsive to the inquiry to find if the mobile station is situated on a transportation;

a location estimator configured to determine, if the mobile station is situated on a transportation, a future location of the mobile station by referring to the time schedules stored in the memory; and

a transmitter configured to transmit to the user a response which comprises the determined future location of the mobile station.

48. (previously presented) A location information provider according to claim 47, wherein the location queryer also finds, if the mobile station is situated on a transportation, a current location of the transportation and an identification of the

transportation, and the response comprises the current location of the transportation and the identification of the transportation.